NOTES.

THE preliminary programme of the International Congress of Mathematicians, to be held at Zürich on August 9–11, has just been issued. The first general meeting of the congress will be held at nine o'clock on the morning of Monday, August 9, in the Aula of the Zurich Polytechnicum. M. Poincaré will commence the proceedings with a paper on the relation between pure analysis and mathematical physics. The next item on the programme is a report of the committee on the object and organisation of the congress; and this will be followed by a paper, by Prof. Dr. A. Hurwitz, on a development of the general theory of analytical functions. The afternoon and evening of Monday will be given to a banquet, a river excursion, and a soirée. On Tuesday, August 10, the congress will meet at 8 a.m. in six different sections, dealing respectively with papers on algebra and theory of numbers, analysis and theory of functions, geometry, mechanics and mathematical physics, astronomy and geodesy, history and bibliography. On Wednesday, August 11, the second general meeting will be held. The organisation of mathematical congresses will then be discussed, and the date and place of the next meeting will be decided upon. On the same day an address will be given by Prof. F. Klein, on the question of higher mathematical instruction, and one by Prof. G. Peano, of Turin, on "Logica mathematica." It is requested that mathematicians who propose to take part in the congress will communicate with Prof. Dr. A. Hurwitz, Falkengasse 15, Zürich, before August 1. A ladies' committee has been formed to look after the comforts of lady visitors while the congress is in session.

PARTICULARS of the construction of the wonderful steam-turbine-driven boat—the *Turbinia*—designed and built by the Hon. C. A. Parsons, were given in NATURE three weeks ago (p. 116). We understand that the *Turbinia* steamed to Cowes last week, stopping at Harwich, without the smallest hitch. On this long run without stop, the complete absence of vibration was greatly appreciated by all on board; from Harwich to Cowes speeds of from sixteen to twenty-eight knots were maintained. The *Turbinia* will be at Cowes and in commission during the review week, for the inspection of visitors and the Press representatives. She is now capable of steaming between thirty-four and thirty-five knots.

THE elevating floor of the Yerkes Observatory at Chicago fell on May 29, just one week after the 40-inch lens had been placed in position. The drop was from its highest elevation, a distance of 45 feet. Fortunately the lens was uninjured, but repairs will take up the entire summer, and will delay the use of the telescope to that extent.

DR. S. A. PAPAVASILIOU has sent us an intimation that he has resigned the directorship of the Service géodynamique de l'Observatoire d'Athènes.

PROF. L. L. DYCHE, of the Kansas State University, has reached San Francisco, *en route* for Alaska, to make arrangements for an expedition to the Pole, beginning next season, and planned to extend over three years or more. He will have provisions for a five years' absence, making the start from the northernmost whaling station.

THE U.S. Secretary of Agriculture has designated a Board, of which Mr. B. Killen, of Oregon City, Ore., chairman of the Board of Regents of the Oregon Agricultural College, and Mr. Evans, of Washington, D.C., are members, to go to Alaska, to investigate the needs of an agricultural experiment station in that territory, and to secure data incident to the establishment of such an institution.

THE Cagnola prize of 2500 lire (100*l.*) and a gold medal having a value of 500 lire (20*l.*) was awarded to Prof. Dr. Ferdinando Sordelli last year for a memoir entitled, "Studî sulla Vegetazione di Lombardia durante i Tempi Geologici," which has just been published as volume xiv. of the *Atti della fondazione scientifica Cagnola.*

PROF. CHARLES L. BRISTOL, of the New York University, and three of his students, with Prof. Tarleton H. Bean, Superintendent of the Castle Garden Aquarium; Dr. W. M. Rankin, of Princeton, and Prof. Wm. H. Everett, of the New York University, sailed from New York for Bermuda on June 3, as a biological expedition. Besides collecting specimens, the party will try to discover a suitable site for a permanent station for the study of marine life. General Russell Sturgis has offered the University a site on his estate at Hamilton.

THE Commercial Museums at Philadelphia, containing industrial exhibits from all the nations of North and South America, including over 75,000 samples of natural produce and industrial products, was opened on June 2, by President McKinley, in the presence of many of the ambassadors of the different American countries, and of special delegates from others. The exhibition is the largest and most complete in many respects that has ever been held. An International Commercial Conference was held in connection with the opening of the museums, under the presidency of Dr. William Pepper, of Philadelphia.

THE United States Weather Bureau has been conducting experiments with kites flown at distances of from one to two miles above the earth, and now it is claimed that it is possible to forecast the weather for a period sixteen hours longer than at present, and more accurately. It is said that the fact has been established that shifting of the wind occurs at the height of a mile above the earth's surface from twelve to sixteen hours before the same change of direction occurs on the surface. Researches by means of high-flown kites and aeroplanes have now been prosecuted so far as to warrant the expectation that within six months the United States Weather Bureau will be able to construct a telegraphic synchronous chart based on conditions of the atmosphere one mile above the earth. This chart will cover the region between the Rockies and the Alleghanies at the outset.

A BOTANICAL society has recently been established at Perth, West Australia, and has been given the designation of the Mueller Botanic Society, as a tribute to the memory of the late Baron von Mueller, who spent the best part of his life in investigating the plants and other products of Australia. Sir John Forrest has been elected president of the new Society; Mr. Wittenoom and Mr. Leake, vice-presidents; and Mr. Skews, secretary.

FURTHER reports of the earthquake in India, on June 12, show that the disturbances were felt over a very extensive area. Considerable damage was done to public and private buildings at Calcutta, and many places in the provinces of Bengal and Assam have suffered very severely. The complete breakdown of telegraphs and other means of communication delayed the reports from Assam regarding the effects of the earthquake in that province. They are now, however, coming in, and present a terrible state of affairs. Reuter reports that at Shillong the shocks of earthquake were so severe and prolonged that everything was levelled with the ground, and many people lost their lives. Gauhati is in ruins. The roads are broken up into chasms, and the railway has disappeared, but no lives were lost. At Goalpara, on the Brahmaputra, the earthquake produced a wave of water which destroyed the bazaar and all pakka buildings. The country is covered with fissures, from which mud and sand are constantly spurting. At Dhubri all pakka buildings have been demolished. The river bank has subsided, the country is flooded, and the crops are ruined. Both at Goalpara and Dhubri there has been serious loss of life. Several places are cut off from communication, and nothing has been heard from them. Throughout almost the whole of the province of Assam bridges have been destroyed and the roads rent with fissures, so that communication by road is impossible, and the telegraph cannot be used. Further information from Assam shows that the earthquake was slight in Silchar, Kohima, Manipur, Dilbrugarh, and Sibsagar; violent at Barpeta, Nowgong, and Mangaldai, in addition to the places already reported. The Chief Commissioner estimates the mortality from the earthquake in the Cherra Hills at between 4000 and 6000, but details have not yet been received.

The semi-centennial anniversary of the American Medical Association, held at Philadelphia June 1–4, was attended by President McKinley. About 2500 delegates were present. Dr. Nicholas Senn, of Chicago, presided, and Dr. Nathan S. Davis, of the same city, founder of the Association, was also present. Several hundred papers were read before the various sections.

Dr. Arthur G. Butler, writing in the *Zoologist* (June 15), describes some observations which tell against the assertion that birds build their nests by imitation, and that the reason why many of them at the commencement of the season trifle with building material for some time before they produce a satisfactory structure is that they are unable at once to remember exactly what the character of the nest was in which they first saw the light of day. Different hen canaries, reared in the usual square box of a London breeding-cage, were turned loose by Dr. Butler in aviaries in which no typical finch-like nest existed, and they reproduced nests nearly resembling those of their wild ancestors. A still more convincing proof of the instinctive building habit in birds is given. Dr. Butler turned loose a canary, also cage-bred, in one of his aviaries, late in April. The bird took possession of a square box hung high up on the wirework, and had almost completed a nest therein when it was disturbed. Afterwards it commenced and completed an elaborate cup-shaped nest in a dead bush.

We are very glad to see that the value of experimental work in agriculture is becoming more widely recognised by British farmers. That this is so, is shown by a petition which agriculturists of the Dunblane district of West Perthshire have sent to the Board of Agriculture in favour of experimental farms. The petition points out that in the United States there are about fifty-four agricultural experimental stations, apart from colleges, receiving Government support to the extent of from 3000*l.* to 4000*l.* each; in France, Denmark, Norway and other countries, large sums are annually expended by Government in aid of agricultural education and research; and in Germany, about a dozen colleges and experimental stations combined receive an average Government grant of about 3000*l.* each. In comparison with this is the fact that in Great Britain the Government grants amount to only about 8000*l.*, which is distributed among eleven colleges and three dairy institutes, and is mostly expended on teaching. The petition goes on to state that a great deal of money is annually lost to farmers through the misapplication of manures, as well as by the injudicious feeding of stock; and though much knowledge has been accumulated by wise and observant farmers, yet this knowledge is being continually lost through want of proper record and confirmation. While some of the suggested remedies for agricultural distress are objectionable, it is believed that a judicious and extended system of experiment would tend, on the contrary, by teaching farmers how to grow larger crops with the same or less expenditure, to increase the supply of home-grown food without increasing its cost.

The retirement of M. Folie from the directorship of the Brussels Observatory has led to an appeal in both Houses of the Belgian Parliament for the separation of the meteorological service from that of astronomy, which is now the case in nearly all other countries. *Ciel et Terre* of June 1 contains a verbatim account of the speeches made in favour of the separation. The Royal Observatory of Brussels was established in 1826 by A. Quetelet, who presided over the International Maritime Conference at that place in 1853, and whose works on the climate of Belgium, and the "Physics of the Globe" are still considered as models of scientific discussion. The Belgian Meteorological organisation, although dealing with a comparatively small area, is one of considerable importance in the European system. It issues a daily weather chart based upon the reports received by telegraph from nearly fifty inland and foreign stations, a volume referring specially to the observations made at the Observatory, by self-recording and other instruments, and a monthly *Bulletin* containing a summary of the observations made in the country. It supplies daily weather telegrams to the various fishing stations, and storm warnings, when necessary, based on the telegrams received from the Meteorological Office in London, and also issues notices to collieries in the event of unusual falls of the barometer.

Mr. H. C. Russell, C.M.G., F.R.S., sends us a description of a very brilliant aurora observed in lat. 47½° S., by Captain Hepworth, of the R.M.S. *Aorangi*, on April 20, while on a voyage from the Cape to Sydney. He thinks the aurora is by far the finest that has ever been seen in the southern hemisphere. It was first observed as a diffused light over the southern arc of the horizon at 6.30 p.m. From this light horizontal flashes soon spread, and flashed upward in every direction, increasing in length and brilliancy, until, at 7.30 p.m., they were shooting across the sky to within 30° of the northern horizon. At 8.30, Captain Hepworth noted that "an arch of bright green light, fading off into yellow, formed over the southern horizon, rose rapidly to a higher and higher altitude, and was followed by similar arches in regular sequence, until there were six distinct arches, their apices being from 10° above the southern horizon to 60° above the northern horizon. They were formed of vertical bands of light from 5° to 20° wide, bright green and yellow at their tops, and of a rosy hue at their bases. Subsequently these arches changed their shapes in all parts of the sky, others forming, but some kind of sinuous curve was always preserved, except in one or two cases. At 9 o'clock a circle formed round the zenith, having a rotary motion, this circular motion having been apparent in all the formations hitherto mentioned. A special feature in this display should be mentioned. These formations all had a westward movement. After 9.15 the aurora was less brilliant, but burst into greater activity a few minutes afterwards, more especially in the northern semicircle. The display lasted until 9.45, gradually fading after 9.30." Mr. Russell adds to this description some interesting remarks on the supposed connection between auroræ and the weather.

The last number of the *Izvestia* of the Russian Geographical Society contains a dramatic account of M. Pastukhoff's second ascent of the Elbruz. The two summits of this Central Caucasus peak attain, as is known, the altitude of 18,470 feet and 18,340 feet respectively, and consist of two funnel-like craters, situated nearly two-thirds of a mile from each other. The northern and eastern slopes of the peak are covered with a thick *névé*, from which originate fourteen large and several smaller glaciers; they cover an aggregate surface of about sixty-seven square miles, and attain a great thickness, fissures 700 feet deep having been measured in one of them. The lowest level reached by the glaciers is 7640 feet. During the ascent, M. Pastukhoff's companion and one guide were disabled, and had to be left behind, and two nights had to be spent on the glacier, under the protection of some stone blocks. While the Russian alpinist continued climbing, with one man only, a snowstorm overtook them; and though M. Pastukhoff reached the summit, he could only catch an occasional glimpse of the opposite border of the crater-like funnel, and leave there a tin box, with thermometers, under a big stone. The downward journey was terrible. M. Pastukhoff and his help lost their way, and when the night came they were on a glacier, which they could not identify, surrounded by a labyrinth of fissures. They had again to spend the night in a hole burrowed with their sticks in the snow, covered by one overcoat only, after having had no food all the day. Happily, next morning they fell in with the other guide, who had hastened to go down to a safer place as soon as the snowstorm began, and had carried with him a few biscuits. They soon found their way to the end of the Azau-glacier, where the other members of the party were anxiously waiting for their return.

THE Wellington Caves, situated in the vicinity of the town of Wellington, New South Wales, are remarkable for the large number of fossil remains of extinct animals found in them. The caves were discovered in 1830 by Sir Thomas L. Mitchell. The valley in which they are situated is bounded on each side by hills of limestone rock, rising to a height of about 100 feet on the eastern side, and considerably higher on the other. The floors of the caves are in places thickly covered with loose, dry, red earth which rises in fine dust at every step. At first it was anticipated that numerous fossils would be found in the earth, but after repeated digging only a few fragments of bone, apparently of the kangaroo, were obtained. About 80 feet to the west of the Great Cave is the Breccia Cave, one of the most important and interesting, from a scientific point of view, yet discovered in Australia. The floor is of red earth of considerable depth, the upper portion containing large numbers of bones. In this cave was found a skull, which proved to be the head of an enormous kangaroo. This led Owen to pronounce the opinion that there would be found the remains of a large carnivorous animal, which had been contemporary with the gigantic kangaroo, his view based upon the fact that the herb-eating marsupial must have had a natural enemy. This prediction was subsequently verified, for in 1887 a skull and several jawbones were found, the teeth being in an excellent state of preservation. These remains were ascertained to be those of a lion of a savage and carnivorous nature. It was also a marsupial, carrying its young in a kind of pouch. Other skulls of the animal have been found, but a complete skeleton has yet to be obtained. Mr. Gerard Krefft, who for several years was curator of the Sydney Museum, took much interest in the work of exploring the Breccia Cave, and under his superintendence many hundreds of fossil remains were recovered, not a few of which are now in the British Museum.

THE Superintendent of the National Zoological Park states, in the Smithsonian Report (1895) which has just been distributed, that a spontaneous outbreak of rabies occurred in one of the enclosures for foxes. This is interesting from a scientific point of view; especially as the animals were in perfect health, and, so far as is known, the disease could not have been introduced from without. A single case at first appeared, and this inoculated the entire cage of foxes, seven animals in all being lost. This curious phenomenon is of great interest as bearing upon the sporadic appearance of rabies in the dog.

MR. LAURENCE LAMBE, in a paper on the sponges of the Atlantic coast of Canada, which has just appeared in the *Transactions* of the Royal Society of Canada, gives a complete catalogue with descriptions of the marine sponges hitherto obtained from this coast and from the river and Gulf of St. Laurence. The list embraces thirty-one species, of which seven are new to science.

THE first of a series of contributions to Canadian botany, by Jas. M. Macoun, Assistant Botanist to the Geological Survey of Canada, appeared in vol. vi., No. 1, of the Canadian *Record of Science*, published January 1894. Ten of these papers have been published, the last in the number of the *Record of Science* which has just been issued. These contributions from the herbarium of the Geological Survey, form an addendum to Prof. Macoun's "Catalogue of Canadian Plants," the first part of which was published by the Survey in 1882, the last (Part vi.) in 1892. The first five parts, composing 1050 pages, include all the species of Phanerogams and Vascular Cryptogams known to occur in Canada, with their distribution. Part vi. deals with the Musci. The notes, which have from time to time appeared in the *Record of Science*, are records of species new to science or to Canada, and notable extensions of the known limits of species already recorded. As revisions of American orders and genera have been published, the necessary changes have been made in Canadian nomenclature, so that by means of the papers printed in the *Record of Science*, our knowledge of Canadian botany has been kept strictly up to date. Each of the ten papers already published averages about ten printed pages, with the exception of the last, which is about twice that size. Seventy-eight additions to the Canadian flora have been recorded in these notes, and the range of several hundred species has been greatly extended. They have been reprinted by the Geological Survey of Canada, and may be procured from the Librarian of that department at five cents per copy.

MR. T. H. HOLLAND, of the Indian Geological Survey, whose investigations of the Gohna landslip in 1894 had such successful results in the prevention of subsequent disasters, has now produced a detailed report on a similar subject. The hill-slopes about Naini Tal appear to be in some danger of slips, as in places the divisional planes of the slates dip in the same direction as the surface of the ground and at an angle which, though actually high enough to make slipping possible, is sometimes less than that of the hill-slope: such a condition is obviously extremely dangerous. The investigations include a full contour-survey and a geological mapping of the district, as well as a determination of the angle of repose for the various constituent rocks. The most dangerous sites are indicated, and suggestions for protective operations made where they are worth undertaking. A large number of plates illustrate the report, which is of importance, not only to the residents at Naini Tal, but to all interested in the general phenomena of landslips.

AMONG the articles and other publications which have come under our notice during the past few days, are the following:—Bog-bursts, with special reference to the recent disaster in Co. Kerry, by Mr. R. Lloyd Praeger, in the *Irish Naturalist* for June. Mr. Lloyd Praeger was a member of the Committee appointed by the Royal Dublin Society to investigate the bursting of the Knocknageeha bog in December last (see vol. lv. p. 254), and his paper is a summary, with illustrations of the observations made.—The presidential address, on "The Evidence for the Existence of Man in the Tertiary Period," delivered before the Geologists' Association at the last annual general meeting, by Mr. E. T. Newton, F.R.S., is printed in the May number of the Association's *Proceedings*.—"De verhouding van het gewicht der hersenen tot de grootte van het lichaam bij de zoogdieren," by Dr. Eugène Dubois. This paper, published by the Amsterdam Academy of Sciences (*Verhand. Kon. Akad. v. Wetensch.* Dl. V. No. 10, April), brings together and discusses a large number of observations of the relations between the weight of the brain and total weight of many animals.—The eighth contribution of "Materials for Flora of the Malayan Peninsula" is made to the *Journal* of the Asiatic Society of Bengal (vol. lxv., Part ii., No. 3, 1896), by Dr. George King, F.R.S., Superintendent of the Royal Botanic Garden, Calcutta.

—An interesting paper on early magnetic observations, "Die Anfänge der magnetischen Beobachtungen," contributed to the *Zeitschrift der Gesellschaft für Erdkunde* (vol. xxxii. part 2), by Prof. G. Hellmann, has been reprinted and is now published as a separate paper by W. H. Kuhl, Berlin.—Report on the progress of the Survey of Tides and Currents in Canadian Waters, by Mr. W. Bell Dawson. The report contains some valuable tidal data, and also the results of a general examination of the currents in the interior of the Gulf of St. Lawrence and the Straits connecting it with the Atlantic Ocean.

THE additions to the Zoological Society's Gardens during the past week include two Vervet Monkeys (*Cercopithecus lalandii*, ♂ ♀) from South Africa, presented by Mr. J. W. Lincker; a Squirrel Monkey (*Chrysothrix sciurea*, ♀), a Yellowish Capuchin (*Cebus flavescens*, ♀) from South America, presented by Mr. H. C. Fernando Rohé; a Vervet Monkey (*Cercopithecus lalandii*, ♀) from South Africa, presented by Mr. Alfred Beit; two Common Peafowl (*Pavo cristatus*, ♂ ♂) from India, presented by Colonel Stucley; a Rocky Mountain Sheep (*Ovis montana*, ♀) from North America, a Suricate (*Suricata tetradactyla*) from South Africa, two White Ibises (*Eudocimus albus*) from South America, a Pennant's Parrakeet (*Platycercus pennanti*), a Rose Hill Parrakeet (*Platycercus eximius*) from Australia, deposited; two Red Kangaroos (*Macropus rufus*, ♀ ♀), two Peaceful Ground Doves (*Geopelia placida*) from Australia, purchased; a Thar (*Capra jemlaica*, ♀), a Great Kangaroo (*Macropus giganteus*, ♂), a Rufous Rat Kangaroo (*Œpyprymnus rufescens*, ♀), two Squirrel-like Phalangers (*Petaurus sciureus*), a Short-headed Phalanger (*Petaurus breviceps*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

ROYAL OBSERVATORY, CAPE OF GOOD HOPE.—Dr. Gill, in his report for the year 1896 to the Lords Commissioners of the Admiralty, sums up the work accomplished during the past twelve months. With regard to the McLean telescope, this is expected to be completely installed and in full working order before the end of the present year. During the last few years, Dr. Gill has somewhat necessarily restricted the amount of observational work in order to make more progress in the computation and publication of many arrears, and it is satisfactory, then, to hear that it has now become possible to again resume a programme of activity. Several important publications have been concluded in the last twelve months. Among them may be mentioned Vol. ii., containing a determination of the solar parallax and mass of the moon, from observations of Iris, Victoria, and Sappho, made in the years 1888 and 1889. Vol i. is also practically complete. The first volume of the Cape Photographic *Durchmusterung* is also ready for distribution, Vol. ii. being in course of printing. The observational work with the transit circle, equatorials, and astro-photographic telescope has been very considerable, and it may be mentioned that all the catalogue plates, with the last-mentioned instrument, have now been obtained. Out of the 230 chart plates, 169 have been satisfactorily exposed. The 7-inch equatorial has also been very busy in the hands of Mr. Innes, and, besides several new variables, 104 new double stars have been discovered. Dr. Gill refers also to the increase in staff and the necessity for a reversible transit circle for refined fundamental work, and mentions that these proposals have been favourably considered by the Lords Commissioners of the Admiralty and of Her Majesty's Treasury.

ZODIACAL RADIANTS OF FIREBALLS.—A remarkable feature about the appearance of slow-moving fireballs is that, as Mr. Denning has pointed out, they are directed from radiants in the western half of the sky and in the neighbourhood of the horizon. A further communication by him to the *Monthly Notices* for May, tells us that not only the most prominent, but the majority of the radiant points determined by observation are found to apparently congregate in a line approximately coinciding with the position of the ecliptic. Although there are a few exceptions to this law, Mr. Denning is nevertheless confident that there is sufficient weight of evidence which is of a suggestive and significant kind. In favour of this view, he gives a table of the observed facts which strikingly corroborate the idea advanced. He draws attention to the importance of accurately recording the directions of flight, and apparent paths among the stars of these bodies when they become visible, and of accumulating data which are necessary for trustworthy results to be based on them. All of us are aware of the great difficulty of accurately observing these strangers in our atmosphere, which come and go at generally most unexpected moments. They are, nevertheless, worthy of special study, and it would be very interesting if they were found to be revolving not only in direct orbits, but in orbits with small inclinations like the Jovian family of comets, as is suggested by Mr. Denning.

THE ROYAL SOCIETY CONVERSAZIONE.

THE second soirée this year took place on June 16. It was very numerously attended, and was more than usually brilliant, as, in accordance with a suggestion made by the President, the officers and many of the fellows appeared in academic or levée dress, to show respect to the Queen's guests who had been invited. The chief exhibits were as follows :—

Electrical effects of uranium : Lord Kelvin, G.C.V.O., F.R.S.

Experiments on kathode rays and some analogous rays : Prof. Silvanus P. Thompson, F.R.S.

Signalling by Hertz waves, as practised by Dr. Oliver Lodge, in 1894, with a Branly tube of filings as receiver, and now adapted to a Kelvin recorder : Dr. Alex. Muirhead.

(1) A selection of dried plants from Tibet, collected by Captain Deasy and Mr. Arnold Pike, Captain Wellby and Lieut. Malcolm ; (2) views near the lake, and in the Queen's Cottage Grounds, Kew, by Monsieur and Madame de l'Aubinière : The Director, Royal Gardens, Kew.

(1) Experiments with Röntgen X-rays ; (2) experiments with kathode rays ; (3) Experiments with oscillatory electrical discharges : Mr. A. A. C. Swinton.

Experiments illustrating a new method of controlling the electric arc in its application to photo-micrography : Mr. T. A. B. Carver, and Mr. J. E. Barnard.

Living specimens of *Proteus anguinus*, Laurenti.—(1) Male and female ; (2) pigmented individual from cave ; (3) young specimen to show the eyes : Mr. E. J. Bles.

Pelagic animals from the west coast of Ireland : Mr. E. T. Browne.

Specimens of electric figures : Lord Armstrong, C.B., F.R.S.

Stress effects produced by convective electric discharges : Mr. J. W. Swan, F.R.S.

Crystals of diamond, separated from carburised iron : Prof. Roberts-Austen, C.B., F.R.S.

Commensalism amongst marine animals : The Marine Biological Association.

Microscopic image, formed exclusively by diffracted light : Dr. G. Johnstone Stoney, F.R.S.

Examples of animal-forms peculiar to Lake Tanganyika : Mr. J. E. S. Moore.

Microscopic sections of teeth of fossil reptiles : Prof. H. G. Seeley, F.R.S.

Illustrations of the absorption of Röntgen rays by certain elements and their compounds : Dr. J. H. Gladstone, F.R.S., and Mr. Walter Hibbert.

Ancient Egyptian knives and lance-head of flint : Sir John Evans, K.C.B., Treas.R.S.

Models of orchids, by Miss Emett, from plants grown in the Royal Gardens : The Director, Royal Gardens, Kew.

(1) New species of British Mymaridæ (egg parasites) or "Fairy Flies" ; (2) aquatic and terrestrial specimens, living : Mr. F. Enock.

Medal struck in gold, silver, and bronze, to commemorate the sixtieth year of the reign of her Majesty the Queen : Mr. Horace Seymour, Deputy Master of the Mint.

Two induction coil contact makers and breakers : Sir David Salomons, Bart.

Demonstration of apparatus for exciting high vacuum tubes for X-ray work : Dr. John Macintyre.

There were the following demonstrations with experiments, and lantern illustrations :—

Signalling through space without wires : Mr. W. H. Preece, C.B., F.R.S.

Photographs illustrating the arrangements of the 1896 eclipse expeditions at Kiö and Novaya Zemlya : Mr. J. Norman Lockyer, C.B., F.R.S.